

## XXXVII.—Notes on a small Collection of Odonata from Argentina. By HERBERT CAMPION.

MR. HAROLD E. BOX has been good enough to place in my hands such Dragonflies as he found opportunity for collecting during his recent visit to the Argentine Republic. The bulk of the material has been presented to the British Museum (Natural History).

The earliest and the latest of the captures were made upon two islands in the delta of the Rio Paraná—namely, Isla Ella (Arroyo Largo) and Isla "Los Cisnes" (about 25 miles N.E. of Buenos Aires). The remaining specimens were taken at four localities on the eastern slopes of the Andes, in the Territory of Chubut, Patagonia. The majority of them came from Lago Epuycn (1000 ft.), in the extreme north-western corner of the Territory. The main river issuing from this lake crosses Chile in confluence with the Rio Puelo, and enters the Pacific Ocean at Reloncavi Bay. Fofocahuel (1800 ft.) and the Estancia Maiten (2000 ft.), two of the localities at which other Dragonflies were taken, are situated ten leagues apart on the Upper Chubut River, east of Lago Epuycn. Finally, the Estancia Tecka (3000 ft.), where *Acanthagrion interruptum*, Selys, was met with, is well to the south of the other Patagonian localities, and stands on the Rio Tecka, a southern tributary of the Upper Chubut.

For two reasons the specimens before us prove to be of much interest. In the first place, according to a recent catalogue of the Dragonflies of Argentina (Ris, Mém. Soc. Ent. Belg. xxii. pp. 94-97, 1913), nothing whatever is known as to the Odonate-fauna of this region of Patagonia. In the second place, the collection includes single specimens of *Gomphomacromia paradoxa*, Brauer, and *Somatochlora villosa*, Ramb., both belonging to the Corduliinæ, a sub-family of which no members have been recorded hitherto from Argentina.

The study of Mr. Box's collection has been much facilitated by the kindness of Mr. K. J. Morton, who lent me some valuable material of *Erythrodiplax*, and Dr. F. Ris, who confirmed the identification of *Ischnura fluvialis*, Selys.

## Family Agrionidæ.

## Subfamily AGRIONINÆ.

*Acanthagrion interruptum*, Selys.

4 ♂, 5 ♀, Estancia Tecka, S.W. Chubut, i. 1920.

As shown by the structure of the anal appendages of the male sex, this Patagonian material belongs, not to the form from Buenos Aires to which Ris has given the subspecific name of *bonariense*, but to the typical form of the species, as originally described from Valparaiso, and subsequently recorded from other parts of Chile, as well as from the Patagonian Territory of Neuquén. This species is the genotype of *Cyanallagma*, Kennedy (Ohio Journ. Sci. xxi. p. 87, 1920).

*Acanthagrion cheliferum*, Selys.

1 ♂, Isla Ella, Rio Paraná, x. 1919.

This specimen is badly discoloured, but seems to agree in its essential characters, both morphological and otherwise, with De Selys's original description of a series of males from Brazil (Bull. Acad. Belg. (2) xli. p. 319, 1876). The lower anal appendages, however, are shorter and more conical than those figured for the species by Ris (Hamburg. Magalhaen. Sammelr. vii., Odonaten, p. 12, fig. 7, 1904), and appear to be more in accordance with what De Selys says of those structures, "rapprochés en forme de deux tubercules coniques." The species has been previously recorded from the neighbourhood of Buenos Aires. *A. cheliferum* is, perhaps, to be included in the genus *Cyanallagma* (Kennedy, *loc. cit.*).

*Acanthagrion ambiguum*, Ris.

16 ♂, 7 ♀, Isla Ella, Rio Paraná, x. 1919.

A very small species, exhibiting affinities with several different genera, and whose true systematic position is somewhat uncertain. It was originally described from the neighbourhood of Buenos Aires (Hamburg. Magalhaen. Sammelr. vii., Odonaten, p. 13, 1904), and Calvert has recorded it from Paraguay (Ann. Carnegie Mus. vi. p. 176, 1909). Of the three forms of the female distinguished by Ris, only ♀ c is represented in the present collection. That is the form in which the pale condition of the head and

thorax results in the disappearance of postocular spots and thoracic stripes.

*Oxyagrion terminale*, Selys.

3 ♂, 3 ♀, Isla Ella, Rio Paraná, x. 1919.

1 ♂, Isla "Los Cisnes," Rio Paraná, vi.-xi. 1920.

Known from Brazil, Argentina, and Paraguay, while a local form has been described from Bolivia (Ris, Arch. Naturg. lxxxii. A. 9, p. 127, 1918).

*Ceratura capreola*, Hagen.

3 ♂, 2 ♀ (citron), Isla "Los Cisnes," Rio Paraná, vi.-xi. 1920.

This extremely small species has been recorded from the West Indies, Mexico, and Central and South America, but "the citron female is not yet known outside South America" (Calvert, Biol. Centr.-Amer., Neuropt. p. 132, 1903).

*Ischnura fluviatilis*, Selys.

7 ♂, 9 ♀, Isla Ella, Rio Paraná.

The anal appendages of the males seemed to show some degree of variation from the figures published by Dr. Ris [Mém. Soc. Ent. Belg. xxii. p. 71, fig. 10 (1913); Arch. Naturgesch. lxxxii. A. 9, p. 132, fig. 74 (1918)], and accordingly specimens were sent to him for examination. In his opinion, however, nothing beyond individual variation is indicated in the material which was submitted.

The females all belong to the orange form.

The species has been recorded from Brazil, Paraguay, and Chile, as well as from several localities in Argentina.

Family *Æschnidæ*.

Subfamily *ÆSCHNINÆ*.

Genus *ÆSCHNA*.

Two closely-related species of *Æschna* are represented in the collection, a larger one from the Territory of Chubut, and another, noticeably smaller in size, from the Province of Buenos Aires. According to the table and figures given

by Ris (Deutsch. Ent. Zeitschr. 1908, pp. 523-527), these are, respectively, *Æ. diffinis*, Ramb., and *Æ. bonariensis*, Ramb. Two females from Fofocahuel (Chubut), referred to *Æ. diffinis*, are ill-preserved, and call for no further comment. As regards the other specimens of *Æ. diffinis*, those from Lake Epuyén, the stem of the T-shaped marking on the frons is somewhat variable, both in stoutness and form, although its sides are never so nearly parallel as in *bonariensis*. In only one or two of the examples of *diffinis* can even vestiges be traced of any pale antehumeral stripes, and then they take the form of a pair of small comma-like spots on the anterior portion of the meso-metathorax. In *bonariensis*, on the contrary, the presence of such spots is the rule, and not the exception. A character which appears to be quite constant is the greater extent in *diffinis* than in *bonariensis* of the white area at the base of the membranule. Another distinguishing character which appears to be equally constant is the greater development in *diffinis* of the longitudinal dorsal carina on the superior anal appendages of the male.

*Æschna diffinis*, Ramb.

2 ♀, Fofocahuel, Upper Chubut River, xii. 1919.

9 ♂, 10 ♀, Lago Epuyén, N.W. Chubut, xii. 1919-i. 1920.

*Æschna bonariensis*, Ramb.

4 ♂, 2 ♀, Isla Ella, Rio Paraná, x. 1919.

Family Libellulidæ.

Subfamily *CORDULINÆ*.

As already stated, the known Odonate-fauna of Argentina is no longer without representatives of the Corduliinæ. Both the species which are now added to that fauna were described from Chile, and were supposed to be peculiar to that country.

*Gomphomacromia paradoxa*, Brauer.

1 ♀, Lago Epuyén, N.W. Chubut, xii. 1919-i. 1920.

*Somatochlora villosa*, Ramb.

1 ♀, Lago Epuyén, N.W. Chubut, xii. 1919-i. 1920.

Subfamily *LIBELLULINÆ*.*Erythrodiplax connata connata*, Burm.

7 ♂, 3 ♀, Lago Epuyén, N.W. Chubut, xii. 1919-i. 1920.

3 ♀, Estancia Maiten, Upper Chubut River, i. 1920.

I have compared the males from Lake Epuyén with Calvert's description of Burmeister's type male from Valparaiso (Trans. Amer. Ent. Soc. xxv. p. 77, 1898), and also with Chilian material in the British Museum which agrees very well with it. In our Argentine specimens the dark brown basal spot in the hind wing is somewhat larger, and the streaks in the subcostal and cubito-anal spaces are confluent. The spot extends outwards as far as the second antenodal, the arculus, a point near the base of the triangle, and the cubital supplement. In its maximum development posteriorly, the spot is co-extensive with abdominal segments 1 and 2, which are similarly coloured. In some of the Epuyén examples, also, the abdomen is rather more depressed, as well as a little broader. Otherwise, the two series compared appear to differ in no essential characters, and their specific and subspecific identity may evidently be presumed.

In the females from Lake Epuyén the abdomen is rather shorter than in the males taken with them, and not quite so broad. The dark brown markings in the wings of the males are replaced by saffron suffusion, reaching outwards to a point near the arculus in the fore wing and to about the third antenodal and the base of the triangle in the hind wing. The three females from the Estancia Maiten are very similar in size, build, and coloration to those from Lake Epuyén, and doubtless belong to the same subspecies.

*Erythrodiplax connata fusca*, Ramb.

3 ♂, 1 ♀, Isla "Los Cisnes," Rio Paraná, vi.-xi. 1920.

The specimens are somewhat smaller than a male and female from Buenos Aires, dated 20. ii. 1909, and determined by Ris, with which I have compared them. The basal spot in the hind wings of the males, moreover, is not so well developed posteriorly. For the most part, the spot is

restricted to the subcostal, median, and cubito-anal spaces, while behind them lies only a narrow diffusely-pigmented area, barely exceeding the membranule in length.

The case of the female from Isla "Los Cisnes" is similar to that of the males from the same locality. The basal saffron suffusion in the hind wing is restricted in its extent in much the same manner as the corresponding blackish-brown spot in the wings of the males. In the Buenos Aires female mentioned above the saffron suffusion extends 4 or 5 cells beyond the apex of the membranule, while in the male with which it is associated the dark spot ceases at the fourth cell.

As regards the material of *E. connata* identified by Calvert for the Godman-Salvin Collection, our males are less extensively marked in the hind wing than the males which he distinguishes by the letter "e," and to which the name *fusca* more strictly applies (Biol. Centr.-Amer., Neuropt. p. 261, 1906). There is a much closer agreement, however, with males from Guatemala (Gualan) and Mexico (Misantla) bearing the letter "c," although in neither of those specimens is the spot so dark in colour as in the most adult example from Isla "Los Cisnes."

Another female from Isla "Los Cisnes" may also belong to *E. connata fusca*. It has, however, more of the appearance of *E. connata connata*, but no males of that form are forthcoming from the same island to support that identification.

*Erythrodiplax nigricans*, Ramb.

3 ♂, 6 ♀, Isla Ella, Rio Paraná, x. 1919; 7 ♂, 4 ♀, Isla "Los Cisnes," Rio Paraná, vi.-xi. 1920.

These specimens belong to the typical form of the species, in which the wings are frequently marked with a small brown cloud beneath the pterostigma. It may be worthy of note that, while this cloud is present in the case of more than half the specimens from Isla "Los Cisnes" (4 ♂, 2 ♀), it does not appear to be exhibited at all by any of those from Isla Ella.